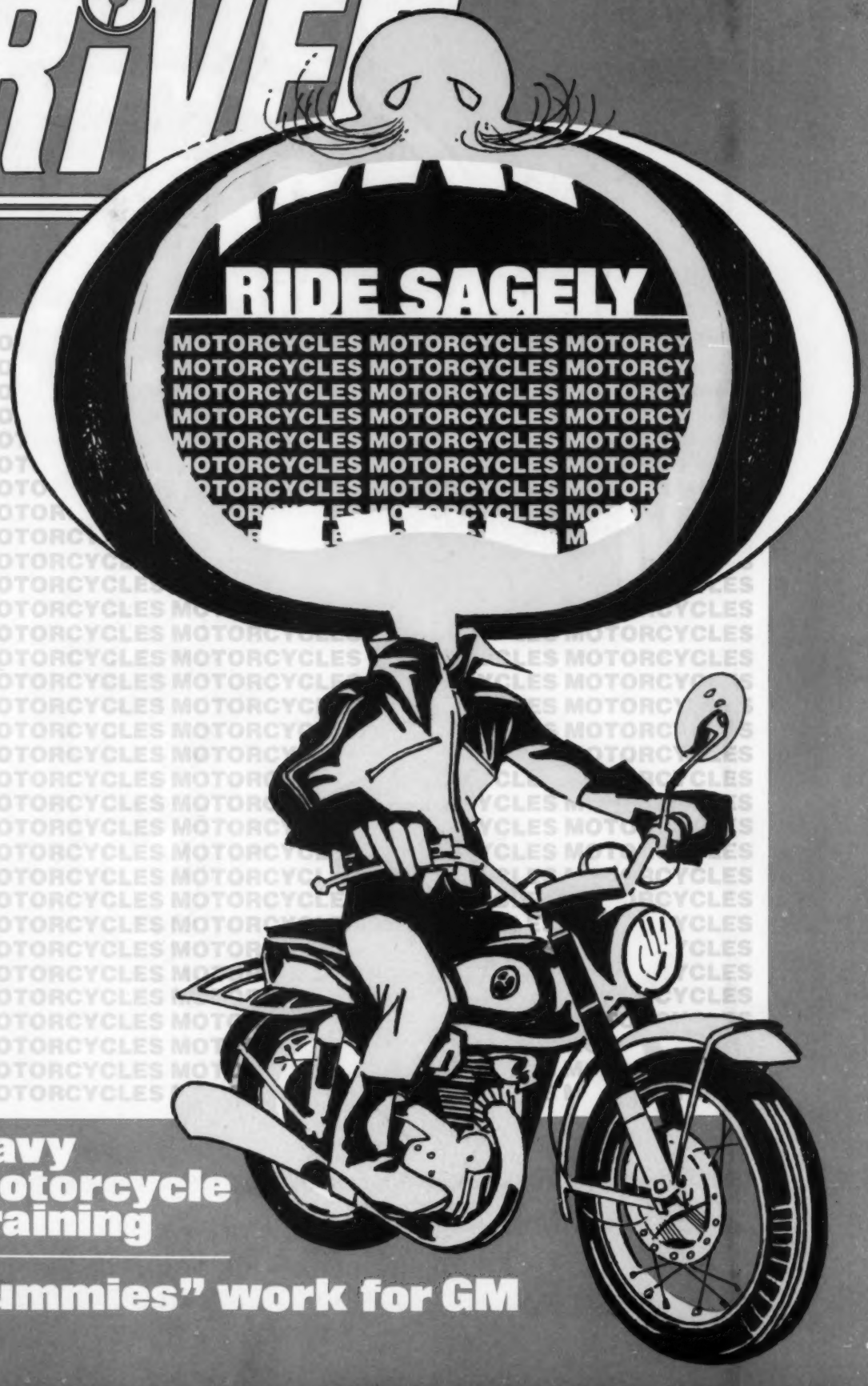
DRIVER

NOVEMBER 1978

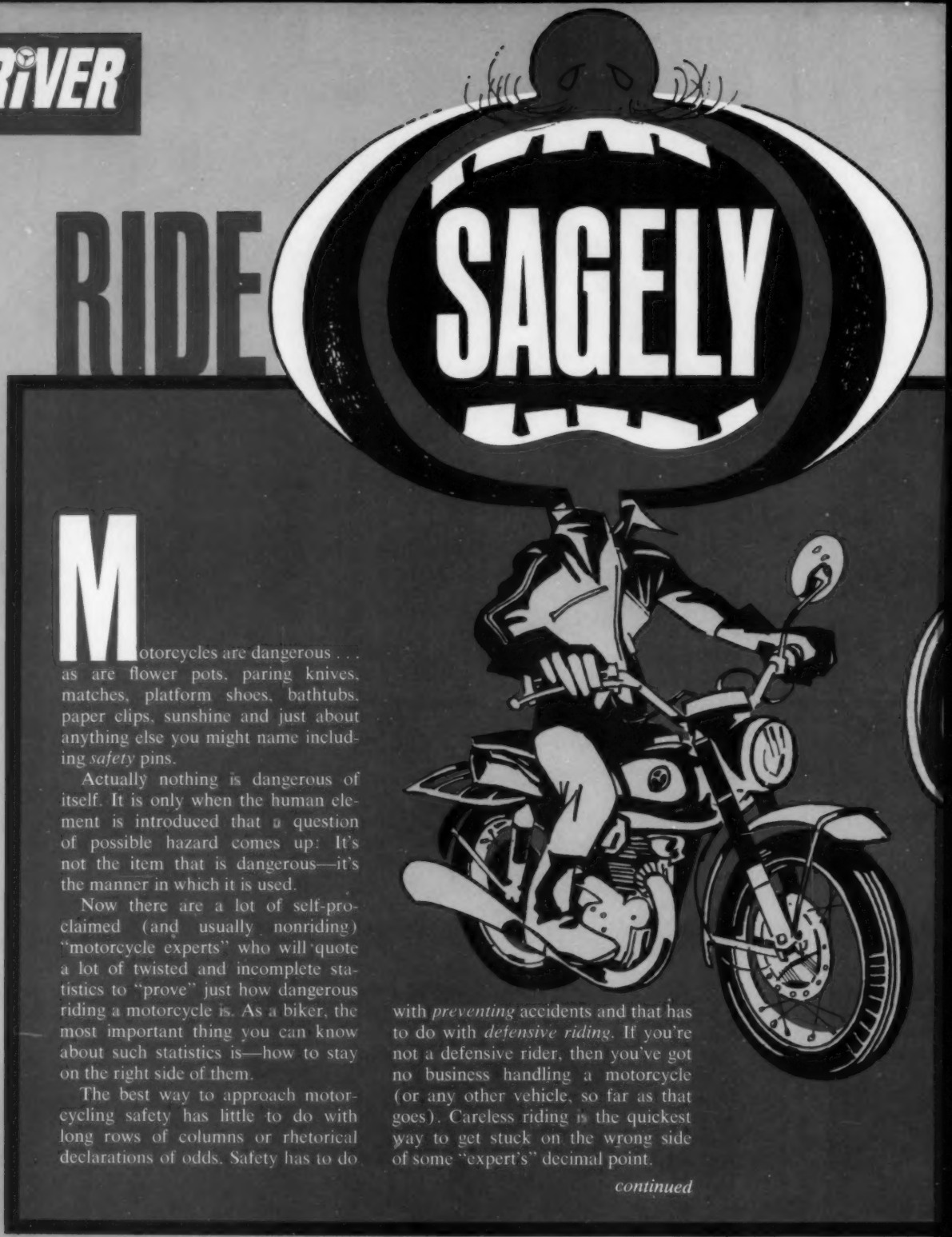


Navy Motorcycle Training

"Dummies" work for GM

DRIVER

RIDE SAGELY



Motorcycles are dangerous . . . as are flower pots, paring knives, matches, platform shoes, bathtubs, paper clips, sunshine and just about anything else you might name including *safety* pins.

Actually nothing is dangerous of itself. It is only when the human element is introduced that a question of possible hazard comes up: It's not the item that is dangerous—it's the manner in which it is used.

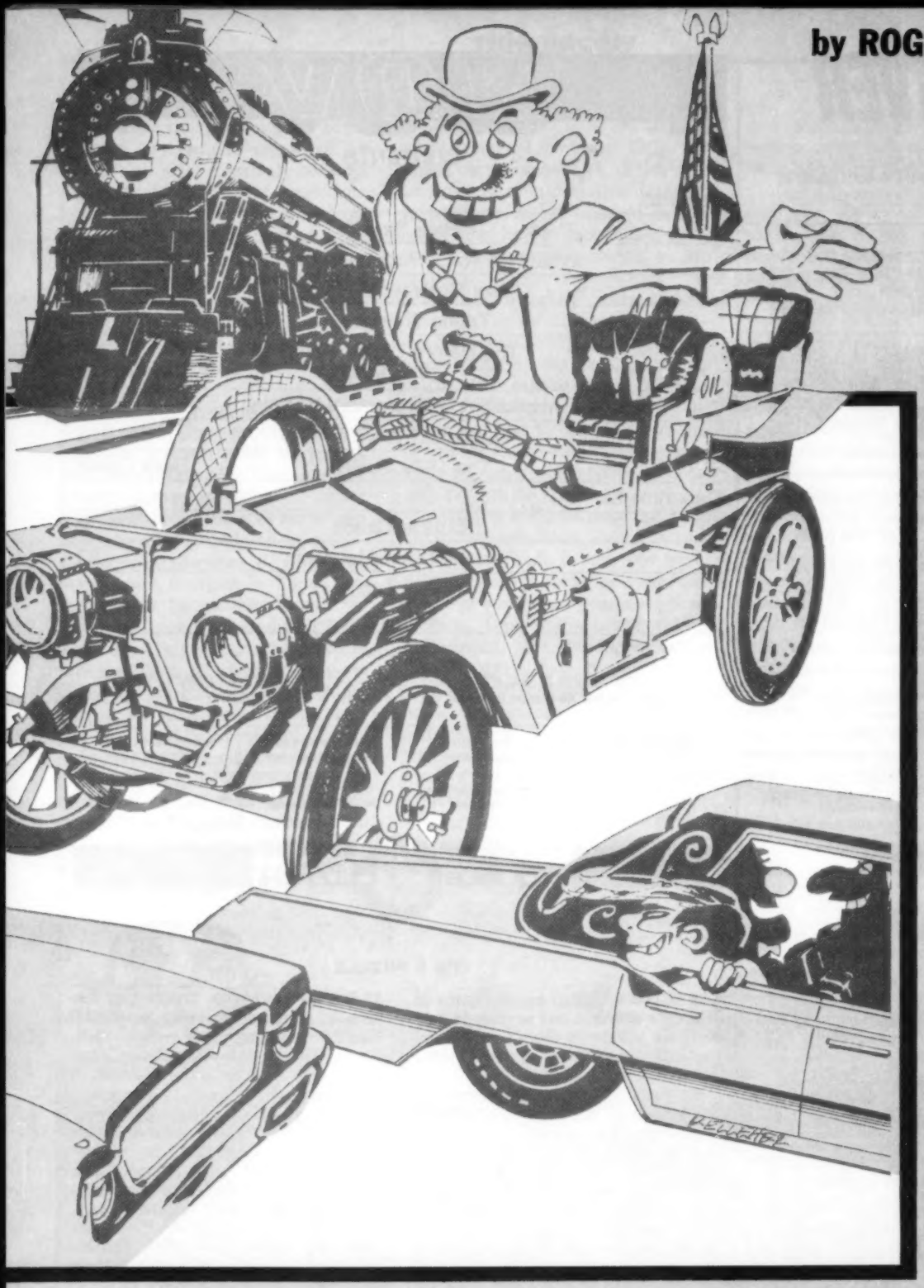
Now there are a lot of self-proclaimed (and usually nonriding) "motorcycle experts" who will quote a lot of twisted and incomplete statistics to "prove" just how dangerous riding a motorcycle is. As a biker, the most important thing you can know about such statistics is—how to stay on the right side of them.

The best way to approach motorcycling safety has little to do with long rows of columns or rhetorical declarations of odds. Safety has to do with *preventing* accidents and that has to do with *defensive riding*. If you're not a defensive rider, then you've got no business handling a motorcycle (or any other vehicle, so far as that goes). Careless riding is the quickest way to get stuck on the wrong side of some "expert's" decimal point.

continued

The redoubtable editor of ROAD RIDER Magazine offers his sage advice on street riding

by ROGER HULL



DRIVER

THE
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FOR THE MILITARY DRIVER

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HQ AIR FORCE INSPECTION AND SAFETY CENTER
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THE EDITOR SPEAKS

DOUBLE CLUTCH

IT'S A PUZZLE

A lot of public opinion surveys come to DRIVER's attention, and sometimes they make us wonder if there's really any way of finding out what people honestly feel about a given subject.

For instance, last week we received a survey report that says 58% of Americans support the government plan for air bags or automatic seat belts, which will start in 1982. The report tells us that by a two-to-one margin, Americans believe their government should require automatic crash protection in new cars rather than encourage greater use of the present seat belt system. (For "encourage" read "tickets and fines for nonusers.")

That sounds like we're finally getting to believe in automotive safety, doesn't it? But wait a minute. Volkswagen has installed automatic seat belts in 100,000 Rabbits. The fatality rate in those Rabbits is .78 per 100 million miles compared with 2.34 for other Rabbits. A fine record.

But do you know what? One in four owners of Rabbits with automatic belts *has already disconnected the system!*

New cars sold in the United States have been equipped with seat belts since 1968. More than 120 million cars, light trucks and vans on the road today have belts. How many Americans buckle up those belts when they get in? About 16%. Fewer than two in every 10.

If the public opinion survey is correct and more than half of us want the government to require air bags or auto-

continued on page 27

Defensive riding is based on attention and anticipation—usually of the worst. You must constantly consider the possibilities in your immediate future and instantly determine just how you will deal with each of them. A motorcyclist not only should know what he is doing every second—he should also be aware of what he's just done and how it will affect what he's going to do next.

Or to put it another way—be ready to duck!

Most cyclists who end up in the wrong set of figures get there for one of two reasons—under-experience and overconfidence. They can be equally disastrous. When a novice biker goes boom, chances are it happened because he had not yet gathered enough experience to cope with the situation in which he found himself. When an old-timer ends up down, it's probably because of some lapse of alertness or a divergence of attention, both of which actually are forms of overconfidence. There are supposedly some honest accidents—but most could be prevented.

Motorcylists are quick to point out that a big majority of all auto/cycle accidents are the fault of the auto driver. Fine. Knowing you have been victimized by an idiot motorist may soothe your ego, but it isn't going to get your cast off any sooner. The obvious thing to do is to try to keep away from the motorist. Help him avoid the consequences of his own stupidity. It should be your responsibility to prevent the accident in spite of the large lack of cooperation you'll receive from most motorists in this endeavor.

A lot of defensive riding consists of things you should already know—the dull, basic safety suggestions and lowly rules of the road to which you've been exposed time after time in one form or another. These are the things you tend to ignore in moments of impatience or anxiety or anger—those moments which come only seconds prior to the accident.

The most basic of these are plain old traffic regulations. They may vary slightly from state to state but essentially they're the same for cycles and autos. If you've not gone over them recently, your state's motor vehicle departments have handbooks which list and explain them. It's a good idea to have a recent copy around the house. Try reading them occasionally and see if you can find just one regulation there that doesn't involve some form of that overlooked commodity, common courtesy.

Most states now require that a motorcyclist be properly licensed. Be sure you've complied. Approach the written examinations with the idea that the questions probably were written by a noncyclist and answer them according to that type of logic. . . . you're more likely to pass the first time. Riding tests are supposed to indicate if you are capable of handling a cycle or not. While they are better than nothing, most are inadequate. Some bikers who can take top trophy in a field meet consistently aren't fit company on the road.

The touring biker is usually riding on one of four basic categories of roads—on superhighways, country roads, residential area streets or business/industrial area streets. There are overlaps, of course, and each has its own special quirks—but basically defensive riding remains the same on all.

Whether in rush-hour city traffic or on the wide open stretches of the interstate, the alert biker will maintain a flow-of-traffic pace. Don't dawdle on the freeway and don't race through city congestion. Keep your distance . . . don't tailgate and don't permit others to tailgate you. Chances are you can stop your bike in a shorter space than that steel tub behind you . . . but should an occasion arise where you have to demonstrate this to that tailgating driver, he's going to

continued

"Keep enough road visible between you and the vehicle ahead to spot the flattened wildlife, etc. . ."

"If you follow too close and traffic suddenly halts, you just may find yourself doing your Evel Knievel imitation-sans your bike . . .

miss the last part because you'll finish the demonstration staring up at an eight-cylinder crankcase.

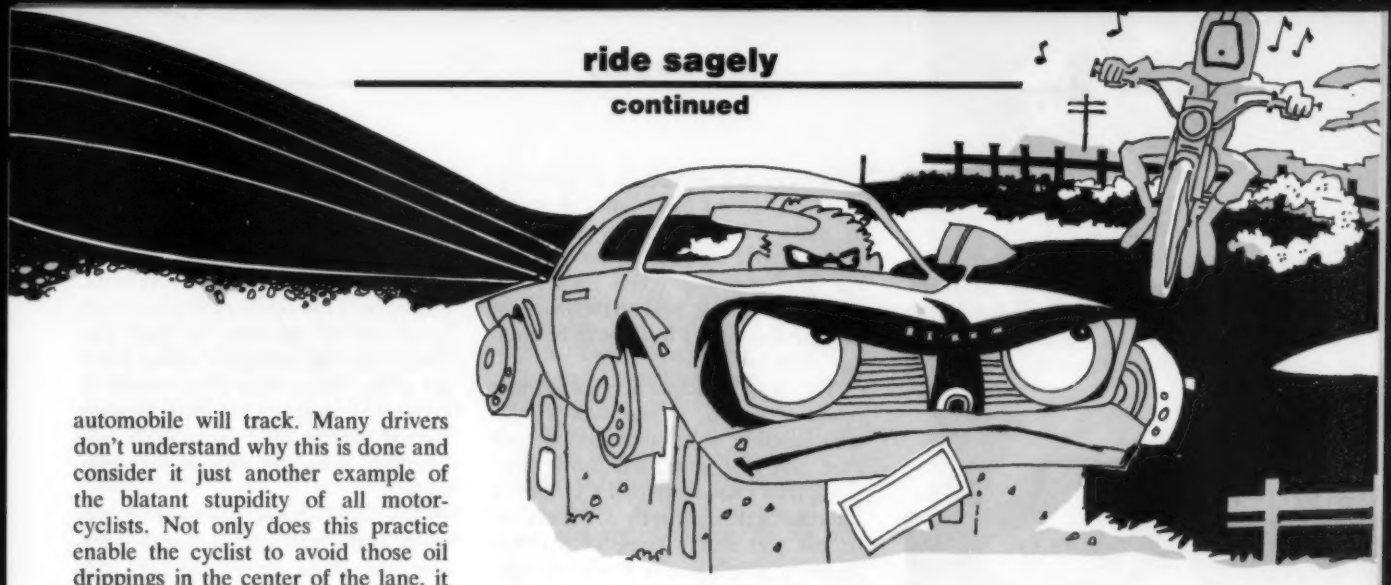
Keep checking your rear view mirrors (note the use of the plural—you're better off with a pair of them). Know what is behind you and how close it is. Ride accordingly. Tapping your brake pedal to flicker your stop lights often will discourage a tailgater. If that doesn't work, motion him back. If that too fails, pull over and let him go ride the bumper of something his size.

That old rule of approximately one car length distance for each 10 miles per hour of speed still works if you know how long a car length is. An easier method is to select a fixed object or mark ahead and count "one-thousand one, one-thousand two," starting when the vehicle ahead passes that object. If you pass the object before completing the count, you're following too closely. It works at any speed.

If you're too close and traffic suddenly halts, you just may find yourself doing your Evel Knievel imitation—sans your bike. On the other hand, if you lag too far behind, you're going to find somebody cutting in, probably in a way calculated to spoil your kind disposition.

Always be aware of what is happening up the road. Be concerned with those several cars ahead of the one you're behind. If you get lodged behind a truck or camper or some other vehicle which prevents you from seeing the road ahead, change your circumstances. Don't let yourself be dependent upon the brake lights of the vehicle directly in front of you. Otherwise you may find yourself guilty of trespassing into somebody's back seat.

A rider should position himself to the left side of the lane—approximately where the left wheels of an



automobile will track. Many drivers don't understand why this is done and consider it just another example of the blatant stupidity of all motorcyclists. Not only does this practice enable the cyclist to avoid those oil drippings in the center of the lane, it also helps avoid other debris which is most apt to be there, shunted aside by the passing of automobile wheels. Most important, his position places the cyclist's reflection in both the inside and left outside rearview mirror of the car ahead; he's less apt to be in a "blind spot." Still another advantage is that any vehicle wishing to pass you must switch lanes to do it—which decreases (but doesn't eliminate) the chance there will be an attempt made to run you off the road.

A cyclist coming up behind another cyclist sometimes is tempted to pass him on the right. If you do, make absolutely certain that the other biker knows what you're up to. A good biker should be aware you're there and frequently he will pull over to permit you to pass within the lane . . . but don't assume. Some bikers, unfortunately, are all over that lane and it is physically impossible for both machines to occupy the same space simultaneously . . . at least in this world.

If you're riding the extreme left lane on a freeway in moderate to heavy traffic, you're smart to switch to the right-hand side of that lane . . . for the same reason—to avoid being crowded into the divider (seldom a comfortable occurrence). Keep in mind, too, that an automobile driver, faced with a choice between denting his fender on another car or on a little old motorcyclist, usually will select the biker. If you see a close call coming up for a motorist, expect him to be willing to sacrifice you on his mobile altar of chrome.

When you change lanes, do it only after signaling your intentions and checking to be sure there is an open space which will accommodate you. Don't depend entirely on those mirrors—take a quick look before you maneuver . . . always.

Never ride beyond what you can see. On those back country roads don't assume that all things remain constant beyond the crest of the hill or that blind corner. There just might be a detour or slow-moving tractor or a patch of oil waiting there to confound you. Regulate your speed accordingly. Slow down before you go into a curve and then do your accelerating as you come out of it. Anytime you're not sure, slow down. If some of your racier friends jeer at such precautions, let 'em. If you ride just to impress your cycling buddies, then you may well end up impressing an embankment or a billboard instead.

Be constantly aware of what the road surface is like ahead. In light traffic, be sure to keep enough of the road visible between you and the vehicle ahead so you can spot the chuckholes, oil, sand, mud, old mufflers, flattened wildlife, etc., far enough in advance to make your evasive maneuvers with due consideration.

Some bikers get into trouble on familiar roads. Riding the same route frequently dulls your alertness. You may know what is beyond that curve and just how sharp the bend is at the far end of the bridge and how fast you can take the dips—but any of these "familiar" conditions are subject to instant alteration. Don't let familiarity breed contentment!

When you pass on a two-lane road, be sure you are clear to do it leisurely. It's a mite distressing to dash into a quick pass just as the bike goes on reserve. After you complete your pass, be certain you are now far enough ahead of that vehicle before you pull back into that lane. You'd be surprised (well, maybe you wouldn't) how frequently a driver will speed up when he realizes he's being passed by a motorcycle.

Unless there is a semi or a Greyhound immediately behind you, be leery when you encounter a long line of oncoming traffic on a two-lane road. You can expect some guy to suddenly pull out of that line to pass—or to check to see if it's clear for him to pass.

Now is a good time to make a temporary exception to that rule about riding the left side of the lane. If you veer to the right temporarily, it will make it easier for that third or fourth driver down the on-coming lane to see you sooner as he noses out from behind the van. If he stays out there too long, he's considering a dash for it (and probably figuring you're farther away or going slower than you are). Try blinking your headlight at him . . . but be prepared to take to the shoulder.

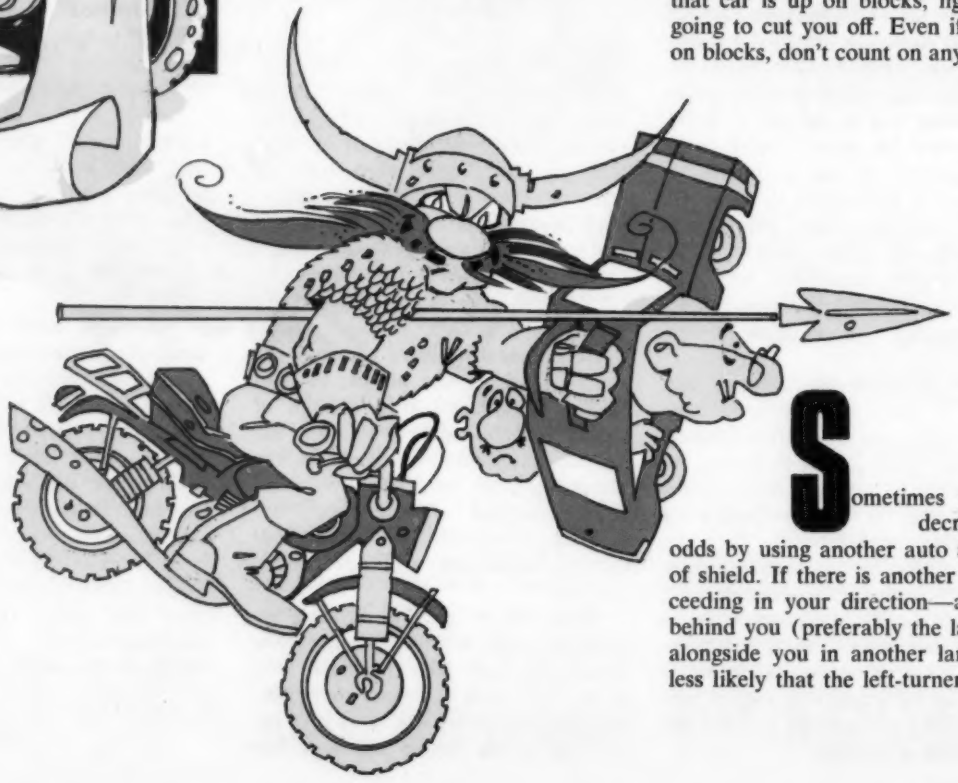
continued

It's amazing how a little thing like not knowing just where you're going can get you into trouble. Always have a reasonable idea of where you're headed and how you're going to get there. Know the interstate exit you want and approach it sanely. By all means avoid that oops-there-it-is procedure of suddenly swooping across three lanes of traffic to make your exit. Plan ahead. If you're about to miss it, continue to the next one and come back. And when you do exit, bear to the inside of the curve—there's less apt to be spillage there.

The same principle applies to other roads or streets. If you miss a highway junction or an intersection, pull over and plot your next move carefully. Don't suddenly pull a U-turn or hit your brakes abruptly . . . that's apt to put you into a game of highway leapfrog which you're bound to lose. Out on the road if you see an automobile pulled over to the side, count on the driver to do something. Maybe he's pouring himself a cup of coffee or taking a map break—or maybe he's just missed something and is about to make a U-turn without checking. Always be wary of parked cars along the roadway.

City streets are more likely to be messy for you than the interstates and freeways where at least everybody is *supposed* to be going in the same direction. Generally the same precautions apply here. Where cars are parked along the curb, avoid riding too close to them. A door may suddenly open and they make lousy fairings. If a parked car contains a driver, he's preparing to get out or pull out. Here's another situation where you'll get a clue from those front wheels. A pedestrian stepping out from between parked cars or off a curb won't take kindly to a sudden ride on your handlebars.

The most dangerous spot in city traffic is the intersection (another reason why those limited access roads usually are safer). Here is where you're most apt to get into trouble and that trouble is most apt to be the notorious left-turner . . . the car will turn directly in front of you with or without signaling his intentions. If there is any place an oncoming car can turn left—intersection, driveway, shopping center—expect him to do it. Don't ever assume that a left-turner is going to wait for you to proceed—not even if the driver is out of the car and peering under its hood. Unless that car is up on blocks, figure it is going to cut you off. Even if it is up on blocks, don't count on anything.



Sometimes you can decrease the odds by using another auto as a sort of shield. If there is another car proceeding in your direction—ahead or behind you (preferably the latter) or alongside you in another lane—it is less likely that the left-turner will try

to beat it out, too. However, it's not a foolproof theory!

When you stop at a red light, be sure you know what's coming up behind you. Some bikers keep the machine in gear with the front wheel aimed at an escape route—just in case. Others tend to stop closer to the center of the lane. That guy who doesn't want you to split traffic out on the freeway is more than willing to share your lane with you here . . . particularly if you're at the front of the line. Bearing toward the center discourages that—but don't make it the exact center!

Just because the light is green for you doesn't mean that somebody else is not about to run the red. Slow down and check first. Stop streets present another hazard . . . the stop-sign skipper. After all, you're just a dumb, degenerate motorcycle rider and he's in a hurry. And frequently it *is* your problem. A car properly stopped when you may have the right-of-way doesn't mean he's decided to grant you that right. Other motorists think that S-T-O-P spells slow and that's all they do. Some interpret YIELD as referring only to four-wheel vehicles. All of these people are sure they can bluff you out. Okay, they're right. Let them bluff you. Let's face it, they're tougher than you are!

If you want to ride with your headlights on (in those states where you have a choice) and dress in bright colors with lots of reflective tape to make yourself more visible, by all means go right ahead. *But don't ever depend upon being seen!* Never assume you are 'seen' because you're flamboyantly 'visible' . . . not even if you're wearing a neon jacket and have a bonfire burning on the luggage rack. Always consider yourself *invisible* and ride accordingly. Never put yourself in the position of being dependent upon another person's reactions—or lack thereof.

Not all motorists are openly hostile to motorcycles, of course. But some drivers gain great sadistic satisfaction in cutting off, crowding or otherwise intimidating bikers. Whether that driver is drunk or sober makes little difference. His major objective is to turn you into a cardiac case . . . or worse. And the heavier the traffic, the better your odds are of encountering such a dolt. Other motorists are courteous and will grant your road rights. Don't count on it—just be pleasantly surprised when it happens —and return the favor.

Occasionally you'll encounter such animate things as dogs and other domesticated forms of life such as children. They all have minds of their own and are, therefore, all the more dangerous for it. Even the smallest dog can upset you if you hit it. Don't try to outguess it—avoid it as best you can. Usually you're probably best off to continue going wherever it was you were headed. If you're chased, speed up if you can do so safely and try to outrun it. Don't kick at pursuing dogs —you might lose control or some pants fabric. Hang on and hope.

Children often follow toys (or other children) into the street unexpectedly . . . sometimes on foot and sometimes on assorted wheeled devices. You have to be extra alert for them around residential or school areas and be advised that they frequently travel in packs.

Occasionally you'll find yourself operating your motorcycle under unusual conditions—riding in foul weather, creeping through the fog, battling high winds—even riding in a group. These are subjects for articles in themselves but the major thing to remember is—alertness and caution. Always have your escape routes (more than one) in mind and ride accordingly. Keep constantly aware of what is going on around you and what is passing under you. Use caution where it is due (like railroad tracks—try to cross them at a 90-degree angle). And don't try to bluff anything—animate, inanimate or in between.

Often you can cause a change in your usual riding techniques by changing something on your bike—like adding a passenger or packing a lot of gear for a long haul. Take these factors into account in your riding

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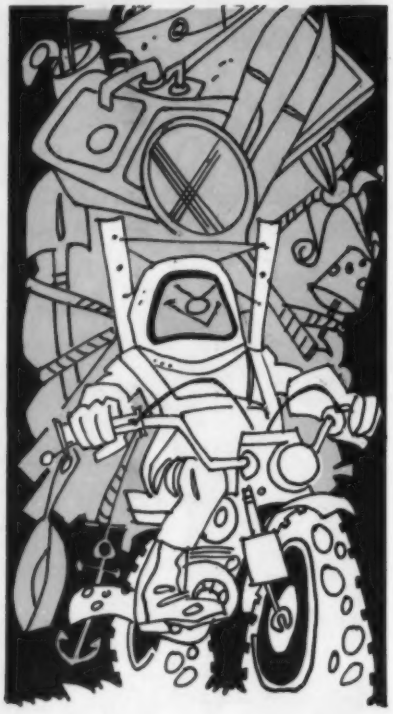


habits. An inexperienced passenger who tries to help in a turn can turn you both into sudden pedestrians. Tossing all your tools, extra oil and other heavy items into one saddlebag while packing the other with a sweater and a three-day supply of potato chips is going to cause handling problems by the time you get to Phoenix or Philly or 'Frisco or wherever.

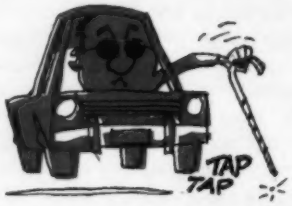
Be sure your machine is equipped with those devices you feel are necessary for your type of riding. Just what all this equipment may be is pretty much up to you, but it should include a pair of rearview mirrors of sufficient size to provide you with adequate behind-me input. Turn signals are a good idea, too.

Usually you've got your hands full of grips and levers and are unable to hand-signal properly. But be sure you turn 'em off after you complete your turn . . . otherwise you're communicating a falsehood to other drivers who probably will think you mean it . . . and when you don't turn where they expect you to may turn out to be one of those unhappy places where X marks the spot.

Windshields, fairings, saddlebags, luggage carriers—these are up to you. If you have a cycle safari in mind, you'll want some of them (it's better than merely tying gear to the back of the bike). Be sure you use them properly . . . like correct packing of saddlebags or proper mounting of a windshield. If you have a roll bar remember that the basic purpose it serves is to protect your bike—not your legs.

Always keep up the preventive maintenance on your bike. Check it out yourself occasionally even if you're usually dependent upon a shop to do such chores. One of the advantages of keeping a clean cycle is that while you're busy polishing, you find all those little things about to go wrong. Be sure the chain (if any) is properly adjusted and oiled. Check the tire tread regularly. Be sure lug bolts and spokes are tight and taut. See if the control cables show signs of fraying. Test bolts and nuts for looseness and tighten them when they are. Give the frame the once-over for any indications of fractures or bending. Be sure you keep the oil level up and take a peek at the fluid level for those hydraulic brakes. If you stay well acquainted with your machine, you'll notice all those gradual changes which take place as it wears out . . . and eventually it will wear out.

But when it's all said and done, the most important safety device on your motorcycle is *you*. Not only should you be prepared mentally, you should



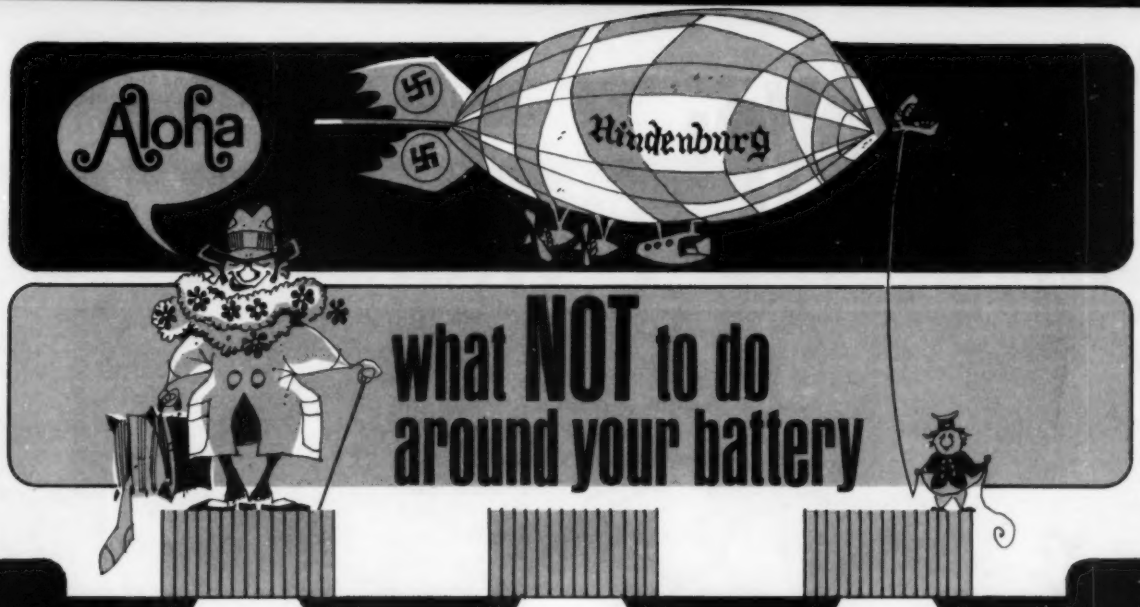
stay prepared physically as well. That means staying off your cycle when you're overly tired, sick, in a lousy mood, or some other pre-disastrous state . . . such as having overindulged.

Add to that . . . protective clothing. You're smart to wear as much as you comfortably can . . . helmet, heavy boots (the higher the better), gloves, arms and legs covered (preferably with leather), some sort of face protection (either on you or on the bike). BUT—keep in mind that all that protective gear provides only limited protection. Basically it will protect you in an accident involving abrasion . . . like scooting down the asphalt without your wheels. You are never prepared for an accident involving impact . . . like splattering yourself against the side of a truck!

Just because you're forced by law to turn on your headlight in the daytime does not necessarily mean you will be "seen." Just because you must wear a helmet does not mean you are "safe". You're not! Never conclude you're absolutely safe just because you've got your skull encased in plastic. Those leathers can save you some skin but they won't prevent a broken bone. Know this and ride accordingly. Don't be misled into thinking you're legally indestructable. That's the worst kind of overconfidence.

Your major concern should be with *preventing* that accident—not merely *surviving* it. And your chances of preventing it are better than your chances of surviving it. If you're smart you'll wear protective gear and if you're *really* smart, you won't have to put it to the use for which it was intended.

In other words . . . ride sagely!



what NOT to do around your battery

In a world of precautionary labels, put this on your "must read" list. Stating, simply, DANGER . . . EXPLOSIVE GASES, the warning on your car's battery also says POISON . . . CAUSES SEVERE BURNS.

Sound scary? Consider that the battery is a device which uses chemicals to produce electrical energy. In so doing, it creates explosive *hydrogen*.

The Hindenburg was filled with hydrogen.

A battery explosion can cause blindness, among other injuries, so the Car Care Council lists six don'ts to remember when you are working around the battery:

1. Don't use a match or cigarette lighter to illuminate what you are doing.

2. Don't lean over the battery when working on it.

3. When using booster cables, never connect the ground jumper cable to the negative post of the rundown battery. Instead, connect it to the frame or engine block of the stalled car as far as possible from the battery.

4. Don't be careless when using tools around the battery. You might accidentally make a direct connection across the terminals or from the hot terminal to a grounded part of the car, creating a dangerous hot spark.

5. Don't smoke over the battery when working on it.

6. Don't hook up your battery charger incorrectly. Instead, follow the directions on the charger and be sure the charger is turned off or unplugged before making connections. Remember to turn the charger off and unplug it after charging and before disconnecting the charger leads.

A couple of devices can minimize your chance of injury. One is a good battery carrier, which holds the battery securely when it is necessary to remove it from the car. Spilled acid can cause severe burns to clothing and skin.

The other is safety goggles, so that your eyes are protected from any possible flying acid or, worse, from fragments of an exploding battery case.

Many are injured annually from that docile looking battery under the hood. Don't be careless. Take precautions.

NAVY MOTORCYCLE TRAINING

Here we go 'round the circle.

Practice makes perfect.

Motorcycle safety instruction is not what it used to be. Until recently, the installation motorcycle course existed primarily to satisfy policy. Bikers needed it in order to get an NAS Whiting Field base sticker for their motorcycles. That hasn't changed. But the course, which is offered the third Thursday of every month, has.

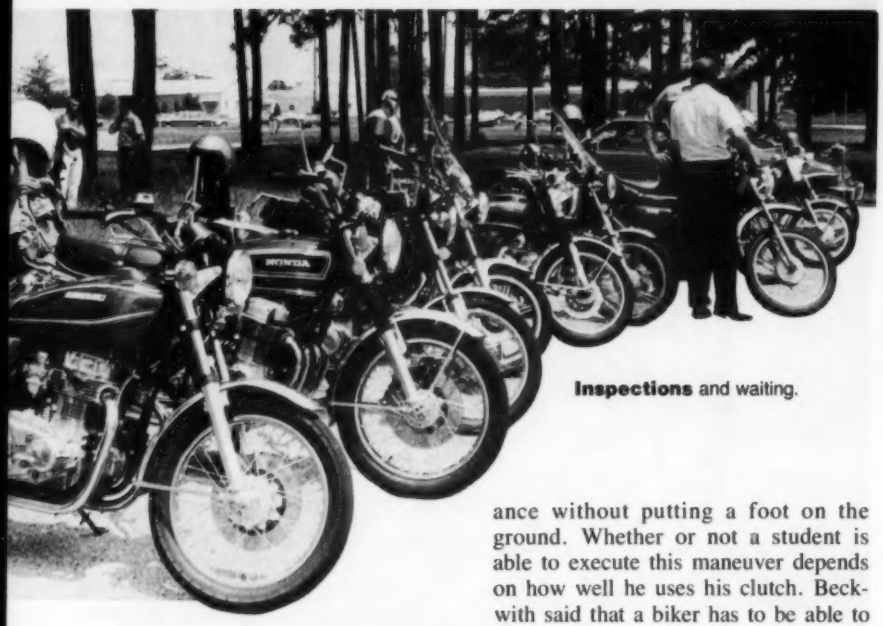
Because of the interest of two graduates from a previous course, the instruction is now much more relevant and worthwhile. Lt John Beckwith and Aviation Machinist's Mate First Class Tony Gill have revised motorcycle safety instruction over the past two months. Fifteen motorcyclists enrolled in their maiden course. Each of them needed a base sticker. But what they got from the instruction was a lot more than authorization to bring their bikes aboard Whiting Field.

Two design new course: The two new instructors, Beckwith and Gill, had both expressed concern that the course was not all it could be. Both had talked to Ralph Porter, NAS Safety Technician, saying they would like to see it improved. So Porter put the two of them onto each other, and let them design a new course.

A Marine Corps officer participating in the exercises said that the outcome of Beckwith's and Gill's creativity "is definitely needed." The instruction consists of a morning classroom session and an afternoon of riding on seven courses. Each course requires that the cyclist have more than a fair understanding of his bike.

The morning classes provide time

by SN DAVIDA KINDER
NAS Whiting Field, FL



Inspections and waiting.

"Hot out here, isn't it?"

for discussions, and everyone learns from each other. Beckwith explained that students with a lot of riding experience have some good comments for the class. On the other hand, newer cyclists may have had different experiences; relating them can help everyone. This sharing is an important part of the learning process.

In addition to the discussion, learning in the classroom is assisted by three slide presentations. One of the presentations is on general motorcycling practices. Beckwith would like to edit this one, making it more interesting by inserting personal anecdotes.

Two other slide presentations deal with motorcycle hazards and emergencies. A fourth presentation is optional. It depicts dirt-riding practices.

In the afternoon, the students ride to an abandoned runway at Whiting's North Field, where they maneuver their machines around courses set up by their instructors. The first exercise, for example, tests the rider's ability to drive a bike between two rows of pylons in a straight line.

The object is that the biker go as slowly as possible, maintaining balance without putting a foot on the ground. Whether or not a student is able to execute this maneuver depends on how well he uses his clutch. Beckwith said that a biker has to be able to control his clutch well in order to be an effective biker.

Throughout the course exercises at North Field, the instructors made a point of telling the students "We aren't out there to show you how bad you are, but how you can improve." And always, for each of the seven maneuvers the students were asked to perform on their bikes, being able to balance their machines was a crucial requirement.

One student expressed surprise at discovering that he was *learning* as much as he was. He said that he had picked up some "useful information that I had never thought about before."

The motorcycle boom began in the late '60s and early '70s, explained Gill. Since that time, the military has been trying to impress upon its cyclists the twin necessities of defensive driving and being able to handle their machines well.

Cycle champ offers wisdom: LCDR Rick Grant is the staff judge advocate for NAS Whiting. He was named by the American Motorcyclist Association as the champion rider in the 100cc class. He was recognized in last October's *Modern Cycle* and November's *Dirt Bike*. In reference to motorcycle safety instruction, Grant said that the emphasis should be placed on defensive driving instruction. The lawyer has taught biking safety himself for "years and years" and realizes that it's hard to teach defensive driving habits in one day.

Grant believes that "motorcycles are fun, practical, economical, wet and dangerous." He also believes that the instruction presently being offered does a good job of addressing potentially dangerous situations. The classroom and course exercises give the students tips as to what constitutes defensive driving. The courses are particularly instrumental in teaching the student what his limitations are on a motorcycle.

At the request of the safety instruction course's designers, Grant rode on the seven courses at North Field himself. This was to enable him to make

continued

continued

any recommendations or suggestions that he thought would be pertinent.

Course goals: Beckwith and Gill relied heavily on reference material, as well as their combined 20 years of motorcycling, in preparing their instruction. Beckwith participated in a similar course while stationed in California. It was offered to Navy personnel by the Long Beach City Police. Beckwith said that Whiting's instruction is much like what he received there.

The goals of the two men are to support safe motorcycling through this revised course. They want to teach their students what they and their bikes are capable of together, exposing them to problems that they may not be aware of.

The course's planners were pleased with their first class. Both men feel that everybody there was interested and had a genuine desire to become better riders. All of them were asked to critique the classroom discussions and the course exercises, including how well they thought the instructors performed in that role. Participants have had no input into the course before.

But there are other differences in the safety instruction as it was then and as it is now. Gill said that much more time is spent on classroom discussion, and he estimates that there is three times more riding instruction now.

When Beckwith took the course in June, the riding portion of the class took place on a cement area measuring about 40 feet wide by 150 feet long. That isn't very much room to try to practice defensive driving, the instructors said.

Emergency stopping at 20 mph.

The class is able to use a vacated runway at North Field, so students are able to practice emergency stops.

According to LCDR Grant, this is a very important aspect of the class, because participants learn how to use their front brakes more effectively. Grant said he knows of cyclists who have never used their front brakes because they were afraid of them. Understanding those brakes and being able to use them correctly is a tremendous asset to any biker.

Whatever shortcomings the motorcycle safety instruction course may have had should not reflect adversely on the people who had been its instructors. Instead, the credit for a newer way of safety instruction should be given to Beckwith and Gill. Because of their interest and willingness to improve the safety habits of their fellow bikers they took the responsibility of achieving that goal.

Before the afternoon session gets underway, the instructors inspect the students' bikes and tell them what to improve to make their machines safer. The knowledge gained from sharing in the classroom and the slide presentations is priceless. The experience a student receives on the seven courses could benefit even the most experienced biker.

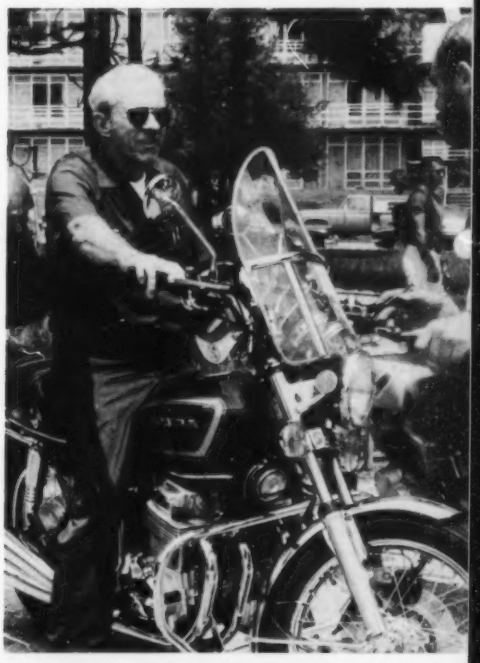
For all of these reasons, cyclists stand to acquire much in the way of biking skills and may polish the skills they already have. Regardless of whether or not a base sticker is their incentive, no biker in the course could help but be thankful.

Inspection—Tony Gill inspects a student's bike before students and instructors ride to the abandoned runway to maneuver their machines around seven difficult courses. The inspection is made so that the bike's rider will know how to make it more safe.

All cycle photos are official U.S. Navy photographs by Photographer's Mate Third Class Julonda Ketron.

Teacher and student.

(left)
This is how it's done—John Beckwith demonstrates the slow ride. He is one of the instructors of the safety instruction course. Together, he and Tony Gill have revised the old course over the past two months.



"You mean I passed?"

Prior to the 30 July 1978 changeover, changing the alignment of all vehicle headlights was required. The government of Japan provided this service free of charge to all car owners on Okinawa. This banner identified the service stations authorized to change headlights without charge to the customer.

U.S. Army photos
by SP5 SCOTT HOLT

Just a reminder to "think left" as one leaves the Makiminato Housing Area.

TRAFFIC CHANGEOVER

by SrA CAROL CORLEE
18th Tactical Fighter Wing
Kadena AB, Okinawa, Japan

Change is normally a slow process, but for more than 50,000 military members, Department of Defense employees and their dependents assigned to bases on Okinawa, quick change was the name of the game 30 July.

On that day, traffic patterns on Okinawa switched from right-hand drive to left-hand drive. Although several countries drive on the left side of the road, drivers on Okinawa have been on the right side ever since the first American soldiers arrived in 1945.

The change in driving patterns was necessitated by the International Road Traffic Treaty. Japan is a signatory of the treaty which stipulates that a single traffic direction rule be applied by each country. Since all of Japan's prefectures except Okinawa had left-hand driving, the traffic changeover was made to fulfill the legal obligations of the treaty.

The actual changeover date was set in 1977 and Kadenans began hearing about the changeover then. Officials gave the designation "7.30 Day" to the changeover to call attention to the actual date the conversion to left-hand driving would take place. Months of planning by officials at Kadena and off-base began early in the year.

Safety officials got together with officials from the security police squadron and civil engineers to conduct traffic surveys. These surveys identified potential base traffic hazards associated with the changeover so plans

It may seem confusing at first, but don't let that scare you into not driving.

could be made to rectify the problem areas before the actual 7.30 Day arrived.

Transportation officials at Kadena got in on the preparation scene by planning and executing the conversion of the base shuttle bus and school bus fleet for left-hand driving. Inhouse modifications were made to more than 40 buses so passengers could exit and enter the buses on the left side.

Base civil engineers put their heads together to redesign and modify existing roads and highways on Kadena to allow traffic to flow smoothly on the changeover date. The U.S. government paid more than $120,000 to alter pavement markings and traffic signs, relocate traffic signs and realign curbing systems. Specialists from civil engineering relocated 800 traffic signs, removed more than 120,000 square feet of painted safety zones, removed more than 7,000 feet of painted center lines, removed 700 directional arrows and 80 crosswalk markings from highways on base. After removal of the traffic markings, new markings were repainted and 300 new concrete curbings were constructed.

Drivers also had to get in on the planning. Since changing traffic patterns in a safe manner was of paramount concern, mental preparation was a must. Articles in base newspapers and other local English-language publications constantly reminded drivers to "think left" for the big day. The American Forces Radio and Television Service station here programmed spot announcements and special presentations to prepare drivers for the change.

Safety officials got back into the action by conducting 36 orientation

continued

Traffic congestion is not uncommon, and it's important to drive defensively.

briefings to more than 16,000 drivers. These briefings were geared toward mentally preparing drivers for the changeover. Crisis situations were identified along with solutions to "get the driver out of trouble." The briefings were aimed at pedestrian safety and safety of the motorcyclist and bicyclist during the changeover period.

After months of behind-the-scene preparation, the zero hour for 7.30 Day arrived. At 10 p.m. on 29 July all traffic on highways was stopped. Special provisions were made to meet emergency and official driving requests. Speed limits for these vehicles were reduced to 30 Kilometers per hour.

From 10 p.m., 29 July, until 5:55 a.m., 30 July, last minute adjustments were made on Okinawan and base highways. Traffic lights were changed, relocated traffic signs were unveiled, and road markings were changed.

Off-base, 2,800 police reinforcements were sent to Okinawa from mainland Japan by the Government of Japan to bolster Okinawa's police force during the change in traffic flow.

Kadena's traffic control police force was beefed up with 30 augmentees. Their primary concern was timely executing of the changeover and ensuring the change was accomplished with minimum disruption to the normal traffic flow. Mobile patrols were provided at those areas identified earlier as problem areas. Security policemen and women stood at intersections to help drivers when the changeover occurred.

In preparation for the changeover and to help the people become accustomed to driving on the left side, over 3,000 police were sent to Okinawa from other areas of Japan.

When the clock struck 6 a.m. on 30 July, Americans here had to break the life-long habit of driving on the right-hand side of the road. At that time, all vehicle traffic on Okinawa switched from the right side to the left side.

The morning was wet, with rains that were the aftermath of Typhoon Wendy. But that didn't keep anyone home. Before 6 a.m., people were in their vehicles in the street or standing on sidewalks, watching traffic history in the making. Sirens blasted and whistles shrieked, heralding the move to the left.

Base officials deemed the changeover a complete success. No accidents attributable to the changeover occurred on base. Officials said the switch was made in an extremely smooth manner. As one security police official said, "Considering the changeover was a once-in-a-lifetime deal, it went great."

Although the basic change in traffic patterns has been made successfully, officials are aware that changing the life-long habit of right-hand driving will take time. Mistakes will be made by drivers, and problems may be encountered with road designs.

Base officials are geared up to meet these problems head-on. Security police and safety officials are pointing out problem areas in road designs and markings. These problems are receiving immediate attention by civil engineers.

The 30 security police augmentees on base remained on duty for several days to aid drivers if a crisis should arise. Off-base, the reinforcement police from mainland Japan stayed at intersections helping drivers adjust to the changeover.

Change is never easy, but for the Americans stationed at Kadena and other bases on Okinawa, the change to the left-hand driving was executed in a smooth manner thanks to total cooperation by all people assigned.

by M. W. BROWNLEY
Human Factors Analyst
Naval Safety Center

the Navy's traffic victim ...who is he

He's young (under 21) and a high school graduate. His associates consider him a regular guy who's got his head screwed on straight. He's a junior enlisted (E-3), in port and on liberty. He's driving his own car, which he hasn't had very long—less than a year. It's Saturday night and he's been out with friends. It's late, he's tired, and chances are 50/50 he's been drinking. The weather's been pleasant and the streets are dry. Conditions seem O.K. But he speeds, loses control and crashes into a tree on the side of the road. An ambulance gets him to a hospital quickly, but nothing can be done. Seat belts might have helped, but he wasn't wearing his. His family is notified, and next day his name appears in the obituary column of the newspaper. His friends go around asking each other "why?" but nobody has an answer.

Who is he? He's your shipmate, one of nearly 250 Navy men and women who die every year in traffic accidents. He is not very different from the Army and Air Force men and women who meet the same fate. Traffic accidents are the number one cause of death and injury in all the Armed Forces.

Do you see any similarity between this profile and yourself? Do you live your life as if only the "other guy" needs to worry about hazards?

Such profiles need not exist. Don't close your eyes to the dangers around you. Driving is a demanding job that requires *all* your attention *all* the time you're doing it.

If you're a young adult, believe us when we tell you that you're in a high-risk group. Because you are. Think about your driving.

(right)
Sgt Larry W. Chambers, from general purpose maintenance, lubricates an Air Force van.

Having checked for leaks and corrosion, SSgt Ken W. Morrell, a special purpose mechanic, tightens the radiator housing on a bulldozer.

maintaining government vehicles

Ask some of your acquaintances – say the first 10 folks you see at the bowling alley tonight – about their No. 1 gripe with services they have to buy, and most of them will start talking about auto repairs. Everybody who drives has at least one story about some mechanic who just charged $97 to fix the car so it belches along on three cylinders and blows the horn at right turns.

Americans may get mad when they talk about what doctors charge for office calls, but the real fire in their eyes is reserved for automobile mechanics.

The modern "service facility" has come a long way from the old "gaso-

SSgt Melvin Coward of the general purpose section secures the carburetor to the manifold during an engine tuneup.

line alley'' garages. Nowdays, auto mechanics are likely to hang out in places that look like hospitals, with fancy electronic gadgets to analyze things and attendants in white coats with badges proclaiming them to be ''factory trained.'' Some of the customers even threaten malpractice suits.

Next time you get mad at *your* garage, stop and think about the folks who maintain the government vehicles you drive. Most of us don't give a thought to the people who keep our government vehicles ready, mechanically sound, safe, and clean. When a vehicle breaks down, we just call Vehicle Maintenance and complain. Whether it's a compact car or a 20-ton crane, we know they can do it.

So when Captain John Moscatelli sent us these photographs from Howard AFB, C.Z., we decided it was time for a public thank you to all the Vehicle Maintenance men and women everywhere.

These photos were taken at the 24th Transportation Squadron's Vehicle Maintenance Branch, where 38 people handle over 300 work orders a month. The total fleet numbers 400 vehicles of all shapes and sizes, including the specialized equipment used by the civil engineers and fire department and on the flight line.

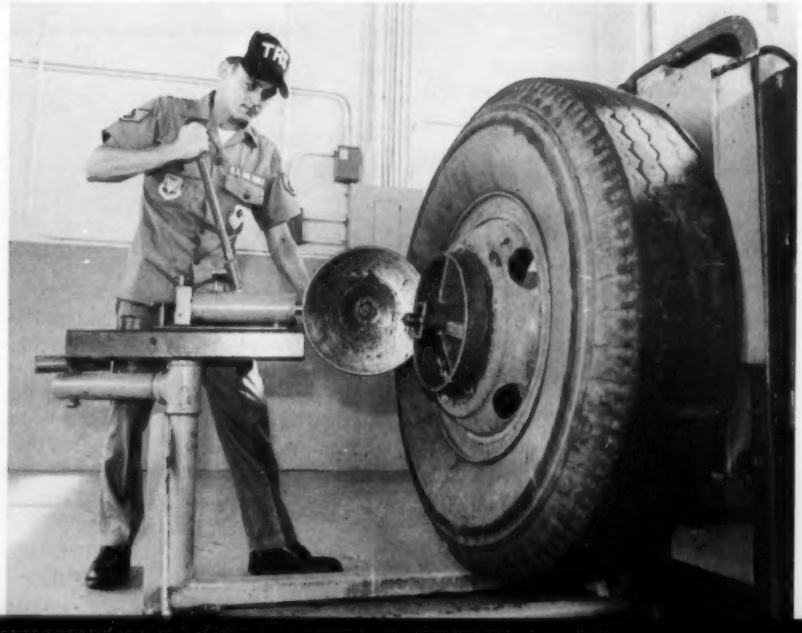
Goggles and mask make Sgt Edward B. Cowan look more like a "Star Wars" storm trooper than a painter as he does his thing with a spray gun.

Amn Stephen G. Boudousquie, maintenance handling section, removes brake retaining springs.

Taking inventory is a recurring requirement accomplished by SSgt Ronald V. Alsager, the bench stock monitor.

Photos by
SSgt JOSE SANCHEZ

(below)
Repairing and replacing tires of all kinds and sizes is just one part of the job for SSgt Maximino Moreno of the minor maintenance section.



"DUMMIES" work for GM

by ED JANICKI

Sometimes they work 16 hours a day, seven days a week. They never get paid and they never complain. They're among the biggest contributors to automobile safety at General Motors.

They're the 54 dummies that are used in the around-the-clock automobile crash tests at the safety research and development laboratory at the GM Proving Ground at Milford, Michigan, near Detroit.

The ultimate goal of their work is to better the safety performance of vehicles by improving restraint systems and creating safer car interiors. Last year, for instance, they went on 521 such safety test missions.

Each $11,000 dummy is aluminum-headed, vinyl-coated and fully instrumented. Their outer skin is not intended to simulate human skin or flesh.

They sit – clothed in pink knit underwear and shoes – in the "dummy farm" of the safety lab awaiting their turn at such missions as crashing through a windshield or maybe conducting an air-bag test.

Most dummies are what are called 50th-percentile males. That means they are average height and weight. They weigh 167 pounds and are five feet, 10 inches tall. Thirty-six of the dummies are that size. The rest are larger males, women and a few are children or babies.

They have orange loops in their heads for easier handling. One safety lab official said they used to store the dummies by hanging them with the loops. Visitors complained. Now the dummies sit and sprawl on chairs.

Technicians prepare dummies for impact sled tests.

Instrumentation inside the head, the chest, and the thigh areas helps to measure the force the dummy applies to a vehicle or the force the vehicle applies to the dummy in a crash. In addition, target points marked by yellow circles on the dummy can be measured on film for such research information as movement, speed and distance traveled.

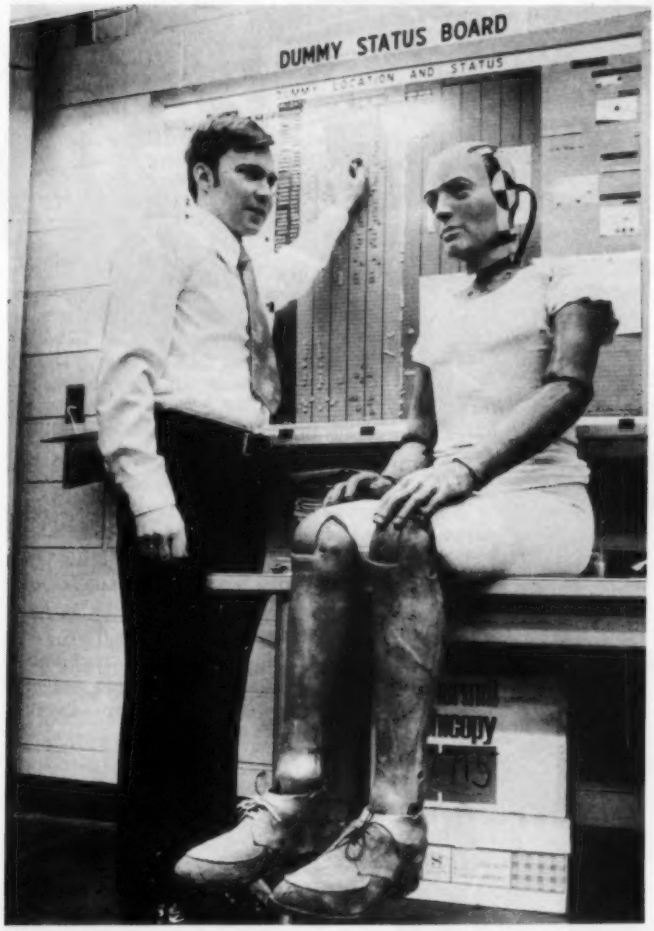
It takes from two hours to half a day to rig a dummy for a test. Two tests are run on each of the lab's two sleds each day. The time it takes to ready a dummy depends on how many broken parts must be replaced. The safety lab has "personal files" on each dummy showing test data and records of repair.

After all the preparation and rigging, the dummies are ready for the test on the high-G impact sled. The dummies also are used in simulated collisions in vehicles, but the impact sleds are used for everyday testing.

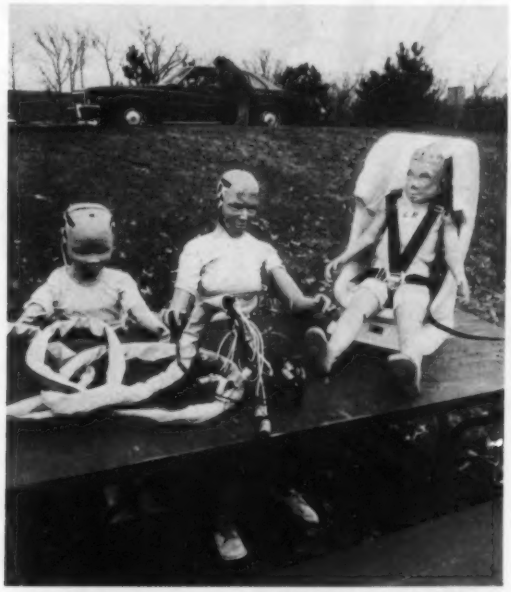
Their test ride on the sled lasts about one-tenth of a second. After that, it's back to the dummy farm for rest and rehabilitation.

Infant robots await "their" turn. They will be slammed against barrier at 30 to 50 mph to test effectiveness of child safety seats and belts.

The dummy farm—Some of the 50 dummies at the General Motors Proving Grounds in Milford, Mich., are restrained by shoulder belts while being stored on wheelcarts. The dummies cost between $10,000 and $12,000 and are made to government specifications by a private contractor. The model in the foreground is slated for a 30-mile-per-hour barrier crash test and will wear a lap belt in an airbag-equipped car.



Robots are entered on the status board, then taken to field stations where tests are performed.



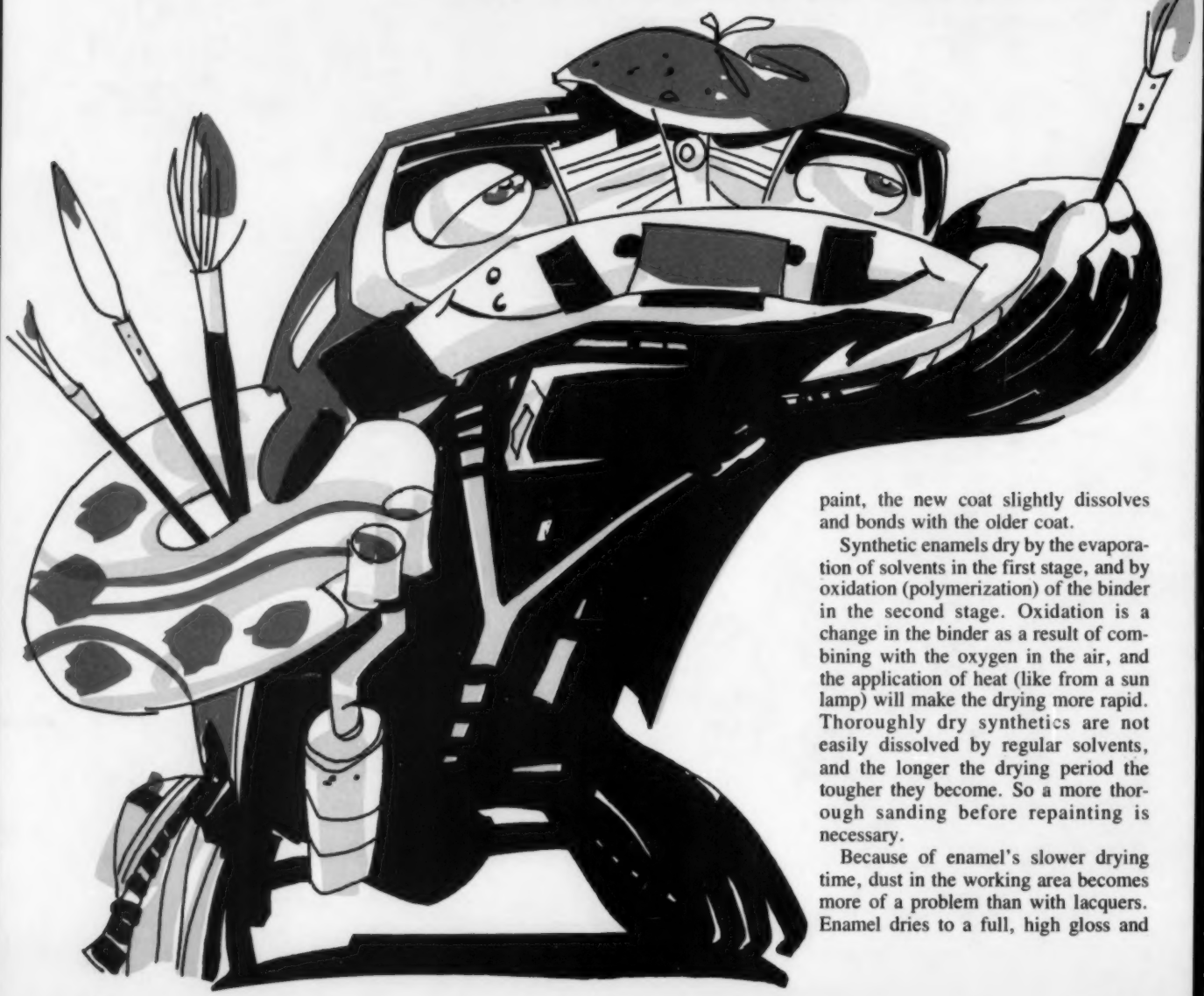
After a brief "respite," the infant dummies will again test child safety seat belts, seats and/or harnesses.

Automotive beauty IS only skin-deep

Let's face it . . . all the body work you've done on your faithful steed is of no avail if the paint job doesn't turn out right. All the hours of priming, sanding, filling, and grinding won't amount to a hill of beans if the finish looks like it was put on with a broom. So, herewith, let us offer a few helpful tips about paint, preparation, and equipment. We can't guarantee a perfect job your first time out, but if you use a little patience and good common sense, even a first-time automotive Rembrandt can turn out a paint job that will make the crowd go "OOOOHHHHHH." And next month, we'll cover masking and actual painting.

Paint: Paint (for automotive applications) is composed of two basic ingredients: One, the volatiles; and two, the film-forming material. The *volatile* is the part of the paint that evaporates, and the part that remains, the part that you actually see, is the *film-forming* material. A further breakdown will yield pigment and binders. The *binder* acts as a carrying device for the pigment and imparts body, toughness, and gloss to the film. *Pigment* is the coloring portion of the paint and serves to produce opacity (the quality of the paint which allows it to "hide" the material it covers) as well as providing protection for the binder.

Lacquer (both nitrocellulose and acrylic) dries by evaporation of the thinner or volatile material. They remain soluble (more or less) so that when they are recoated with the same type of paint, the new coat slightly dissolves and bonds with the older coat.



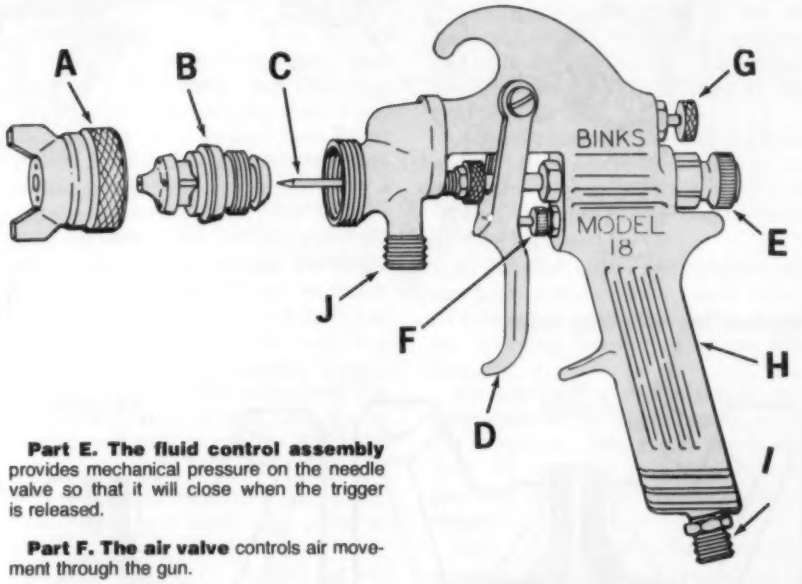
Synthetic enamels dry by the evaporation of solvents in the first stage, and by oxidation (polymerization) of the binder in the second stage. Oxidation is a change in the binder as a result of combining with the oxygen in the air, and the application of heat (like from a sun lamp) will make the drying more rapid. Thoroughly dry synthetics are not easily dissolved by regular solvents, and the longer the drying period the tougher they become. So a more thorough sanding before repainting is necessary.

Because of enamel's slower drying time, dust in the working area becomes more of a problem than with lacquers. Enamel dries to a full, high gloss and

Automotive Painting

The basic parts of a modern spray gun should be familiar to you before you begin to work with it. Study the parts and definitions shown here, and next month we'll show you how to manipulate them so that your car gets a shiny coat of paint in the process.

(Illustrations courtesy of BINKS Mfg.)



Part A. The air nozzle (also called the air cap) is the most important part of the gun. The air nozzle directs air jets that atomize the paint and give the resulting particles velocity to reach the surface you're painting.

Part B. The fluid nozzle provides the means for controlling and metering delivery of paint to the air nozzle.

Part C. The needle assembly acts as a stop-start valve for material flow through the gun (in conjunction with the fluid nozzle).

Part D. The trigger activates and controls the air and paint movement to the nozzles.

Part E. The fluid control assembly provides mechanical pressure on the needle valve so that it will close when the trigger is released.

Part F. The air valve controls air movement through the gun.

Part G. The side port control (or fan control) regulates the spray pattern width by controlling the air supply to the "horns" of the nozzle.

Part H. The spray gun body handle is thoughtfully provided so that all the parts may stay together and you may have a convenient method by which to hold the gun.

Part I. The air inlet is where the air hose is connected to the gun.

Part J. The fluid inlet is the connecting point for the paint supply (usually in the form of a quart-size cannister).

doesn't require polishing, while lacquers need to be "rubbed out," or polished, to attain a full gloss. Another difference is that enamel is said to dry from the inside out, while lacquers dry from the outside in.

Since we advocate repainting with the same type of paint that is on your car now, you'll need to know what kind of finish it is. If the car has factory paint, just check the code letter for paint that is found in the VIN (vehicle identification number) located on the door or dash of your car. The letter, when referenced in a paint manual, will tell you what kind of finish was used, and what the factory name for the color is.

If the car has been repainted, rub a small area with lacquer thinner. If no color comes off on the rag, the finish is enamel. If some color shows on the

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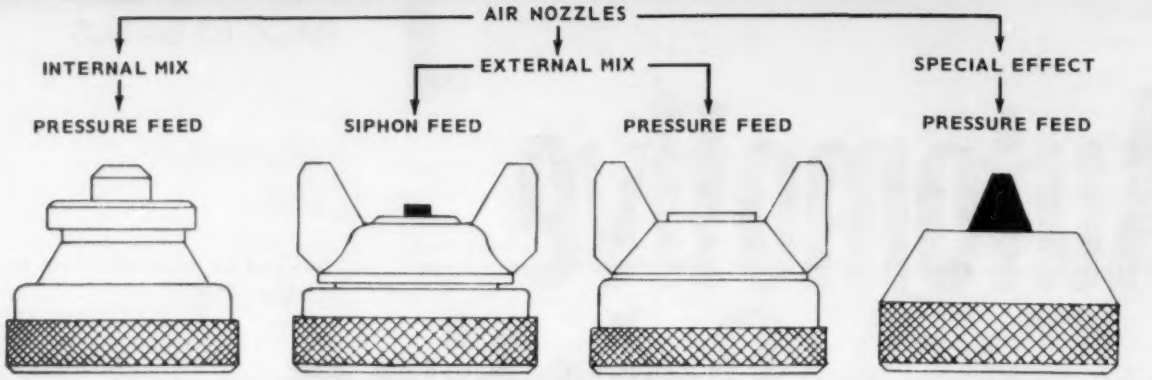
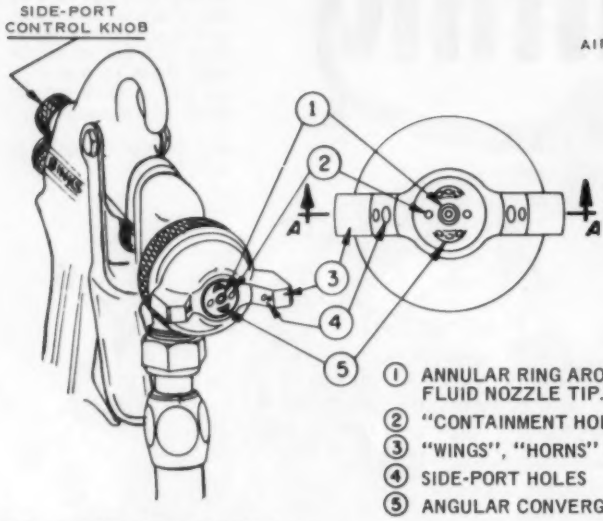
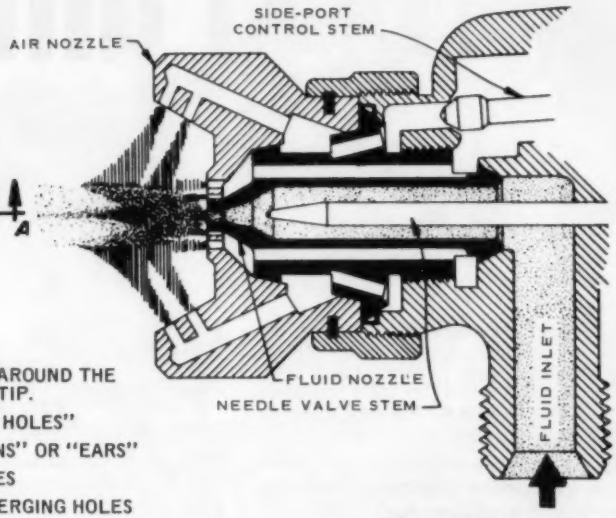


The external-mix air nozzles shown in the center are probably the type you will see most. Be sure you have the right type of nozzle for the system you're using.

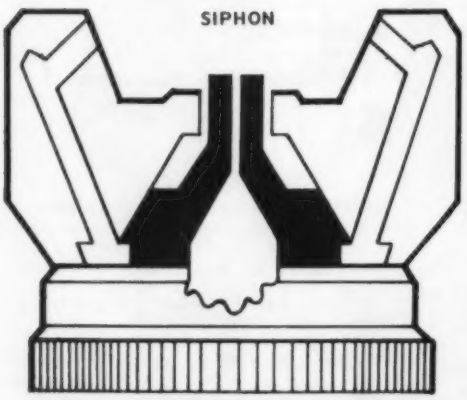


① ANNULAR RING AROUND THE FLUID NOZZLE TIP.
② "CONTAINMENT HOLES"
③ "WINGS", "HORNS" OR "EARS"
④ SIDE-PORT HOLES
⑤ ANGULAR CONVERGING HOLES

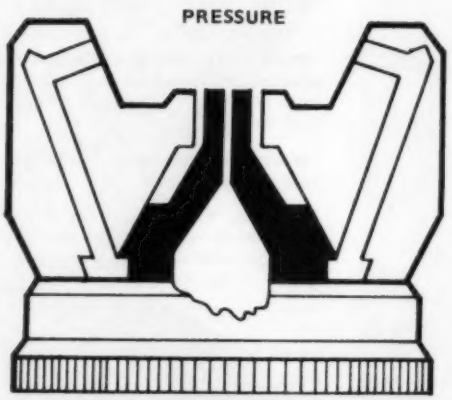
External Mix Atomizing Holes



Air and Material Flow



Siphon-feed nozzle is identified by the fluid nozzle which protrudes beyond the face of the air nozzle.



Pressure-feed external mix nozzle. Don't put a pressure-feed nozzle on a siphon-feed system.

rag, you've got lacquer. To further identify the paint if you find it's lacquer, rub an area with silicone polish remover. Acrylic lacquer will come off with this method, while nitrocellulose will be unaffected.

Most cars today are finished in either synthetic enamel, acrylic enamel, or acrylic lacquer. Acrylic lacquer is recommended for use on all cars which were originally finished with lacquer. If acrylic lacquer is used over enamel, a sealer should be applied over the enamel, and you must do the entire panel since you can't spot-finish with this method.

If you elect to use acrylic lacquer over your old lacquer finish, sanding the surface (if it's in good condition) isn't really needed . . . just make sure the surface to be painted is clean.

If you're painting over enamel, the surface should be thoroughly sanded and cleaned if you're gonna use lacquer, and sealed if you're painting over enamel.

Whether you elect to use synthetic enamel, acrylic enamel, or acrylic or nitrocellulose lacquer, the decision mostly depends on what the old surface is VS your personal preference.

Some painters prefer nitrocellulose lacquer because it dries quickly and dust in the work area isn't much of a problem. Others go with enamel because, unlike lacquer, it doesn't involve the extra time- and labor-consuming step of polishing. Many painters we talked to recommend lacquer for beginners though, because mistakes (like runs or sags) can be easily corrected, but when enamel is on, you're stuck with it. The choice is yours.

Other Stuff: *Thinners* and *reducers* are solvents used to thin paints to the correct viscosity for spraying. Generally, thinners are used for lacquer and acrylic products while reducers are used for synthetic-based enamels. They are not usually interchangeable. Thinners are also sometimes formulated by manufacturers to provide specific thinning qualities for specific temperatures and levels of humidity.

Before you spray any primer, surfacer, sealer, or color coat, you've got to be sure that all grease and/or wax has been removed from the surface. *Wax, polish,* and *grease removers* are used for this purpose, and they are extremely important since the adhesion of any paint film to a surface depends on how clean the surface is. "Clean" means not only physically clean, but chemically clean as well. The slightest film of rust, wax, oil, or moisture will prevent paint from adhering to a surface. The removers are solvent-type products and should be applied with clean rags and plenty of elbow grease. In case you were wondering . . . no, gasoline is *not* a grease remover. Not only is it dangerous to use, but it will cause the paint to crater or "fish eye" as it dries.

If your car has been polished with silicone-based cleaners, you'll need a remover specifically designed to obliterate any traces of those little "silly cones."

When automobile bodies have been stripped to bare metal, rust will creep up on the steel quicker than Tony Dorsett runs out a handoff from Roger Staubach. In order to prevent rust from forming, wipe the bare metal with a *metal-conditioning fluid*. This will not only prevent rust, but will chemically clean and etch the surface for better paint adhesion.

Another little goodie you'll definitely need before you lay on that paint is a *tack rag*. A tack rag is usually a piece of cheesecloth or soft cotton cloth that has been soaked in thin, non-drying varnish and then wrung out. If you're a nice person and keep it in its air-tight container, it'll remain sticky. Then, just before you apply any paint or primer to the surface, you wipe the surface with the tack rag. The tack rag will remove all the dust particles that have gathered on that nice clean surface . . . and then your paint job won't look like a relief map of the moon.

Spray guns: Why go to all the trouble of renting a spray gun and compressor, or going all the way out to the base hobby shop to use theirs, when for a few bucks, you can buy some spray cans of tangerine/puce metalflake lacquer and save yourself all that expense and grief? The answer is simple . . . cars that have been painted with a good spray gun in a controlled paint booth look like it. Cars painted in a backyard with 237 cans of spray paint look like it.

Now that we've convinced you to go the spray gun and paint booth (or at least enclosed garage) route, let's get into a bit about spray gun construction before we press on.

There are two basic types of paint spraying guns. One type has the gun and paint container as a single unit, the other has the gun separate from the paint supply. These two types can be further separated into bleeder and non-bleeder, external and internal mix, and pressure, gravity, or suction feed guns.

Guns designed without air valves are known as *bleeder* spray guns. Air flows through the gun at all times (preventing pressure build-up in the air line) and is used with small compressors with limited capacity. The trigger controls only the flow of paint in this type of spray gun.

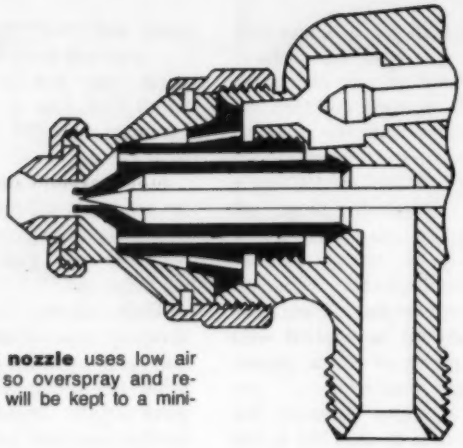
A *nonbleeder* gun is equipped with an air valve which shuts off the air when the trigger is released. In this type of gun, the trigger controls both air flow and paint flow.

A gun that mixes and atomizes air and paint outside the air cap is called an *external-mix* gun, and is best suited for spraying fast-drying paints like lacquers.

An *internal-mix* gun mixes air and paint inside the air cap before the material is sprayed. This gun is commonly used for spraying slow-drying stuff like flat wall paint and automotive enamels.

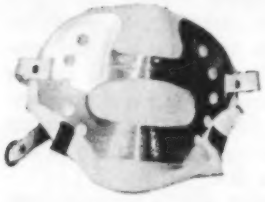
Suction-feed identifies the type of gun where a stream of compressed air is used to create a vacuum so that paint is forced from an attached cannister. The gun is usually limited to a one-quart capacity and is identified by the fluid regulating tip extending past the air cap. This type of gun is used mostly where there will be many color changes in the process of the job, or where relatively small areas have to be covered (like when you paint your car, maybe?).

continued

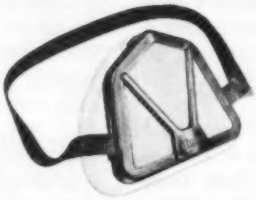


The internal-mix nozzle uses low air pressure and fluid, so overspray and rebounding or droplets will be kept to a minimum.

CARTRIDGE-TYPE RESPIRATORS



Face Pad Type



Double-Duty Pad Type

Filter Type

Cleaning the gun: Since you know now that you're going to use a spray gun instead of little spray cans to do the painting, you know too that the equipment will have to be cleaned. Let's get into spray gun care for a bit, and then we'll move on to paint shop safety.

Spray guns should be cleaned immediately after each use. If you don't accomplish this little step, you're gonna wind up with a spray gun that has dried paint in the nozzle and internal passages. If that happens, well . . . let's just say that if you've borrowed the gun, you're gonna spend 12 days trying to clean it, or you're gonna owe your buddy a new gun.

To clean a suction-feed gun and paint cup, first loosen the cup from the gun. While the paint pick-up tube is still in the cup, unscrew the air cap (air nozzle) two or three turns. Hold a folded, heavy cloth over the air cap and pull the trigger. This will divert air into the fluid passageways and force any paint left in the passages back into the cup.

Then empty the cup and put in a small amount of solvent. Reinstall the cup and spray a bit of solvent to clean the internal passages. Remove, empty, and dry the cup.

Wipe off the external surfaces with a solvent-soaked rag or, if necessary, use a soft bristly brush dampened with thinner. Remove the air cap and clean it in solvent. If the small holes remain clogged with paint, try soaking the cap in solvent for a while. If the holes remain clogged, ream them out with a match stick or a broom straw. Don't use anything metallic to ream out the holes (like a welding nozzle cleaning wire) because you can easily damage the holes by increasing their diameter.

A caution at this point . . . don't immerse your gun in solvent and then leave it overnight. This can allow sludge and crud to build up, and then, the next time you use the gun, all that junk will come out the first time you squeeze the trigger. This, in turn, will probably ruin the area you're trying to paint (not to mention ruining your smile and your day, too). Also, if the gun is left in the solvent too long, the solvent will function as advertised and eat off all the lubrication from the seals, packing, and sliding surfaces of the gun.

FILTER-TYPE RESPIRATORS

Single Cartridge Type

Double Cartridge Type

(Photos courtesy of BINKS Mfg. Co.)

Paint shop safety: Basic shop rules apply to the paint shop as well as other shops. Rules like no horseplay, clean floors, sufficient ventilation, and proper illumination are all valid. But there is one particularly dangerous aspect to the paint shop . . . the danger of fire.

TOXIC EFFECTS FROM OVEREXPOSURE TO PAINT SOLVENTS

Solvent	Effect of Inhalation
Acetone	Irritating to mucous membranes; choking sensation
Alcohol, ethyl	Intoxication
Alcohol, isopropyl	Intoxication; headache
Benzene (benzol)	Injury to blood-forming organs, and to heart, liver, kidneys, etc.
Carbon Tetrachloride	Nausea, headache, vomiting; injury to liver (nephritus)
Cellosolve	Irritating to eyes, disagreeable odor
Cellosolve, methyl	Possibly affects blood-forming organs
Ethylene dichloride	Irritating to nose; retching; unconsciousness
Methylethyl ketone (MEK)	Irritating to nasal passages; choking sensation
Methylisobutyl ketone (MIBK)	Irritating to mucous membranes; choking sensation
Naphtha, V.M. + P.	Headache; vomiting; muscular twitching
Toluene (toluol)	Same as for benzene except little damage to blood-forming organs
Trichlorethylene	Similar to carbon tetrachloride; disturbed heart action
Turpentine	Irritating to nose and throat; headache; vomiting; stomach pains
Xylene (Xylol)	Same as for benzene except little damage to blood-forming organs

If you forget everything else, at least remember that paints and thinners are HIGHLY FLAMMABLE. That's a couple of polite words for saying that they burn like &¢%$!

Paints and thinners should *always* be kept in closed containers. This will lessen the danger of fire and save you money as well, because all that expensive stuff can't evaporate if it's kept in closed containers. Smoking and/or open flame should *never* be permitted.

There should be an ample number of fire extinguishers handy, and you should know their location like you know the back of your hand. And be sure you know how to use them correctly. Check them regularly to insure that they are properly serviced and charged.

Remember that you *can't use water* on oil, grease, gasoline, lacquer or thinner fires. You've gotta have a foam or dry chemical extinguisher. It might not be a bad idea to keep a bucket of fine sand handy, too.

Oily rags, tack rags, and paint rags and strainers should be kept in separate, lidded containers.

If you're repairing collision damage, keep in mind that the car's wiring might be damaged too, and that can lead to shorts and sparks. So why not disconnect the battery before you bring the car into the shop (or even before you work on it!).

Remember that paint and solvents contain material that can irritate your tender body. Gloves, long-sleeve shirts, long pants, and high-top shoes or boots are a good idea. Your lungs can be easily damaged too, so wear air filtration equipment at all times. You might even want to read the attached chart so you'll be familiar with the effects of inhaling some of the staff found in paint shops.

NEXT MONTH

We told you this painting stuff was gonna take patience! If you can hang in there till next month, we'll show you how to mask off the shiny parts, how to mix and strain the paint, and how to apply that glossy stuff. Stay tuned . . .

Timely Topics

THREE-POINT PASSIVE BELT INSTALLATION—BENCH SEAT

Hamill Manufacturing Company, a division of The Firestone Tire & Rubber Company, has developed a passive restraint system to meet 1982 Department of Transportation (DOT) passive restraint standards. The company says the system is the least complicated and most economical three-point passive system they have yet developed. The upper torso belt and the lap belt are controlled by an inboard-mounted Vehicle-Sensitive Retractor (VSR) which permits freedom of movement until an emergency situation, in which the VSR locks up. A door-mounted mechanism lifts the lap belt upward to permit easy entrance and egress. The system is being evaluated by automakers for application in future model years.

REPAIRING CRASH DAMAGE

If your $5,097 standard-sized 1978 car is wrecked, it is far cheaper to buy another car than to have yours rebuilt, a study has found.

It would cost $23,400 to replace all of its parts, the Alliance of American Insurers says. "Repair of the 'totaled' car would be more than four times the purchase price," the National Insurance Trade Association said.

But the study illustrates the rising cost of auto-crash repair as a factor in the cost of automobile insurance, the alliance says. "It also shows why even minor crash damage is so expensive to fix."

"What all this means is that even moderate damage can make a car not worth repairing, especially if it is three or four years old. This is a hard pocketbook fact many drivers overlook. If they understood it better, more of them would drive defensively."

DOUBLE CLUTCH

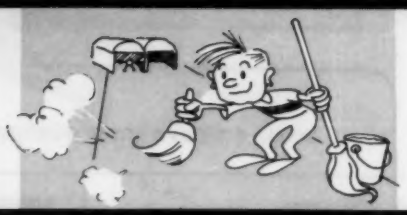
continued from page 2

matic belts—which we will pay for—why are only 16% of us using the devices we already have? And why have 25% of the people who own vehicles with automatic belts disconnected the system?

If you can answer these questions, the Department of Transportation probably has a carpeted office and a nice mahogany desk ready for you.

LETTERS to the EDITOR

BACKfire



DRIVER vs METRICS

The specifics of the problems which I noted in your April '78 issue are as follows: In the reply to the letter "Kilopascals?" the comment was made that the Pascal was a unit of pressure over an area. To some degree it may be just a question of wording; however, to be precise, a Pascal is a measure of pressure. And pressure is defined as a measure of force per unit area. Pressure "over an area," on the other hand, will create a force, a quantity which in the metric system is measured in dynes or Newtons.

A similar imprecision exists in the article "Metric Markings." It is remarked that pounds per square inch and kilopascals both are units which measure pressure, but then the author carelessly interchanges pounds (a measure of force) and pounds per square inch (a measure of pressure). The two units are not the same and do not "convert" to each other.

In the metric system which we will all use someday, the basic measure of pressure is in units of Newtons (force) per square meter (area). (For ease in reference this unit is named a Pascal.) A Newton is defined as a force which will change the speed of (accelerate) a one kilogram mass one meter per second for each second the force acts on the mass. (In comparison the nominal acceleration of a falling body on earth, i.e., the "acceleration of gravity," is 32.2 feet per second per second or 9.81 meters per second per second.) As it works out, a Newton is the equivalent of a little less than a quarter of a pound, the English unit popularly used to measure force (about 0.225 pounds per Newton). Thus one Newton per square meter, or one Pascal, is really a very small pressure. By way of contrast, a pressure of one pound per square inch is the equivalent of about 1550 pounds per square meter or 6895 Newtons per square meter (Pascals).

Based on this equivalency one converts pounds per square inch to Pascals by multiplying by 6,895. However, it is obviously easier to discuss everyday pressure in terms of thousands of Pascals (kilo Pascals). Thus to convert pounds per square inch (pressure) to kilopascals (pressure) one multiplies the pounds per square inch value by 6.895.

(As an aside, it is acknowledged that the "Metric Markings" article appears to have been prepared by the Tire Industry Safety Council and the inaccuracy is theirs. That inaccuracy becomes more misleading when it is published in DRIVER.)

Capt W. S. Jett, USN
CINCLANTFLT Staff
Norfolk, VA 23511

We publish Capt Jett's comments because we do wish to be as accurate as possible, and also because we know the U.S. must catch up with the rest of the world and truly get comfortable with the metric system as soon as possible.

SOME RV POINTERS

Being an RVer for a few years now, I found your article "Some RV ABCs" in July's issue most interesting. Being the owner of a 25-foot self-contained travel trailer which I've pulled from coast to coast, I'd like to pass on a few pointers.

One item not on your list of necessities which I have found invaluable is the Electric Brake Control. Mounted either under the dashboard or on the steering column of the towing vehicle, it enables the driver to use the trailer's brakes to help slow down the trailer while also using the tow vehicle's brakes. With a little practice, the trailer's brakes can be applied on the same principle as a "drag chute." The minor cost of an electric brake control will more than compensate for a new set of brakes at the end of the trail.

One hazard that compares with driving in "high or gusty winds" is being buffeted about by every tractor-trailer rig whizzing by on the Interstate. There isn't any way to avoid this unless you want to plan your trip along back roads. I have found it best to keep an eye on my mirror for these rigs and anticipate slowing down my speed by a couple of miles per hour just as they pass. Some of the buffeting can be reduced by slightly opening the windows of the trailer or by opening the overhead hatches (weather permitting).

In conjunction with your tip on taking along a campground listing and a road atlas is my tip to plan to set up camp early. Anticipate your approximate location at about 1600 and then look for a campground listed in that vicinity. If the campground is full when you arrive, you will still have a couple of hours of daylight to search for another. Also, in many resort areas or state/national parks, it is wise to write or call ahead to make reservations. Stopping early will give both you and the vehicles a chance to rest. A cool beer in the late afternoon, while the kids scout out their new surroundings,

Address your letters to: Editor
DRIVER Magazine
AFISC/SEDD Norton AFB CA 92409

is a lot better than the chaos of trying to set up camp in the dark with everyone travel-weary and on edge.

If you anticipate parking for an extended period of time or overnight, it is best to unhook the trailer from the tow vehicle and raise the tongue by hand crank. This will take the extra load off the tow vehicle *and* help to keep the trailer level. If you plan to set up camp for a couple days or more, it is a good idea to take a hydraulic jack, at least two jack stands, and a bubble level along. A few minutes of your vacation time used to set the trailer level will make a big difference for its occupants (especially if mama's gonna do any baking).

Finally, and I know that it is allowed in some states, I have found it much safer and less worrisome to adhere to the rule: "NEVER PERMIT ANY PASSENGERS IN THE TRAILER WHILE IT IS BEING TOWED."

YN1 David M. Kaeser, USN
3412 Anker Street
Alexandria, VA 22306

POVs TO JAPAN

The headline "BAN ON SENDING POVs TO JAPAN CONTINUES" (pg 11, Aug '78 DRIVER) is very misleading. It is not until one gets to the second paragraph that he finds the ban applies *only* to cars manufactured after 31 Mar 1976.

Your article expresses a negative side of sending POVs to Japan, as did the transportation personnel when I told them I intended to ship my pre-1976 vehicle to Japan.

I shipped my POV and am very happy that I did. I think you should have changed your headline to more accurately state "BAN ON SENDING POST-1976 POVs TO JAPAN CONTINUES."

LCDR James N. Kraft, USN
CFWP Box 39
FPO Seattle 98767

We could have done better on that headline. The ban is the result of strict emission controls imposed by the Japanese.

I SAY, CHAPS

We regard as absolutely foolish the suggestion from one of your readers that drivers of American cars have mirrors mounted as to be facing the front of the vehicle. In sunlight (yes, we do have sun occasionally in England), a reflection would be cast into the eyes of the on-coming driver. It is not advisable as, apart from incurring the wrath of the British motorist, it is most likely that the offender would be summonsed for breaking the law.

S.A.C. T. Rushent (Royal Air Force)
HQ Comiberiant (C-5 Division)
Oeiras, Portugal

TUMBLEWEED CAR CLUB

I read the letter from Capt Leuty in the April '78 "Backfire" and also your response. So I thought you would be interested in our club activities here at Mt. Home.

We use a sterile taxiway on base for drag races and are in the process of establishing an autocross area on this taxiway for these races.

We were established in 1975 and our raceway is sanctioned by the National Hot Rod Association (NHRA). We are also trying to become sanctioned by the Southern Idaho Sports Car Club. So far, we have had two "Open" events. It takes a bit of effort to support our type of club, but it is well worth it.

SSgt Paul L. "Kit" Carson, USAF
President, Tumbleweed Car Club
Mt. Home AFB, ID 83648

KIDS AND PACKAGES

I have been a faithful reader of DRIVER for more years than I care to remember. As a rule I agree with what you write or remain neutral because I figure you know more about your subject than I do!

However, one statement in the article, "More Miles per Gallon" (Jun '78), smacked me right between the eyes. Put packages in the back seat? NEVER . . . unless it's a quart of ice cream you'll put immediately into the freezer.

Put kids in the back seat but lock packages in the trunk. A thief isn't likely to pry open a window and steal your kids, but packages are so tempting. (Leaving kids or pets unattended in a car could be the subject of a future article.)

I enjoy the magazine and learn a lot from it.

Ms. Lillie Harrell
600 S. Dayton #3-109
Denver, CO 80231

☆U.S. GOVERNMENT PRINTING OFFICE: 1978—683-012/1

the 1979 TURKEY with all the trimmings

Someone called us recently and asked "is there a car I can buy that has never been recalled for safety defects?" Since we couldn't think of one offhand, we decided to form a car company and build an unrecallable vehicle. Taking only those parts which have never been the subject of a safety defect investigation and combining them, we hereby announce the arrival of the first TURKEY, fresh off the assembly line. It's a real TURKEY, and our trusty engineering staff informs us that plans are in the works which will even allow this TURKEY to turn right!

REMEMBER

"If you don't buy one of these TURKEYS, you'll know the real meaning of Thanksgiving!"